

Claims 1 - 11: (Cancelled)

12. (New) A process for preparing a porous ethylene polymer comprising:

- prepolymerizing propylene in presence of a Mg, Ti, and halogen containing solid catalyst component having a porosity, measured by a mercury method, higher than 0.25 cm³/g, wherein from 0.1 to 15 g of a propylene pre-polymer per g of the solid catalyst component is produced; and
- polymerizing ethylene in presence of the propylene pre-polymer to produce an ethylene polymer up to an amount ranging from 10g to 2.5 kg per g of the propylene pre-polymer.

13. (New) The process according to claim 12, wherein the propylene pre-polymer produced is from 0.3 to 10 g per g of the solid catalyst component

14. (New) The process according to claim 12, wherein less than 1 kg of the ethylene polymer is produced per g of the propylene pre-polymer.

15. (New) The process according to claim 12, wherein the solid catalyst component comprises a titanium compound supported on a magnesium dihalide.

16. (New) The process according to claim 12, wherein the solid catalyst component has pores having a radius up to

1 μ , and the solid catalyst component has a porosity higher than 0.3 cm³/g measured by a mercury method.

17. (New) The process according to claim 12, wherein the solid catalyst component is non-stereospecific.

18. (New) An ethylene polymer comprising a total porosity, expressed as percentage of voids, higher than 40%, wherein the porosity is due to pores having a radius up to 10 μ m.

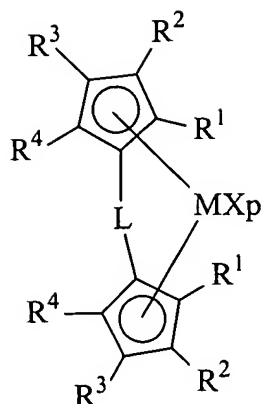
19. (New) The ethylene polymer of claim 18, comprising a porosity higher than 50%.

20. (New) The ethylene polymer of claim 19, wherein the ethylene polymer comprises pores with a radius up to 1 μ m, and the pores with a radius up to 1 μ m comprises from 25 to 70% of the total porosity of the ethylene polymer.

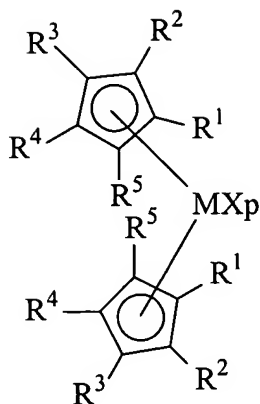
21. (New) A catalyst system comprising:

- (a) an ethylene polymer having a porosity expressed as percentage of voids, higher than 40% cm³/g;
- (b) at least one transition metal organometallic compound; and
- (c) an alumoxane or a compound able to form an alkylmetallocene cation.

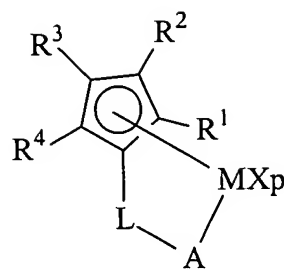
22. (New) The catalyst according to claim 21, wherein the transition metal organometallic compound is a metallocene compound having formulas (I), (II) and (III):



(I)



(II)



(III)

wherein

M is a transition metal belonging to group 4, 5, or to the lanthanide or actinide groups of the Periodic Table of the Elements;

X, equal to or different from each other, are monoanionic sigma ligands selected from the group consisting of hydrogen, halogen, R^6 , OR^6 , $OCOR^6$, SR^6 , NR^6_2 and PR^6_2 , wherein R^6 is a linear or branched, saturated or unsaturated C_1 - C_{20} alkyl, C_3 - C_{20} cycloalkyl, C_6 - C_{20} aryl, C_7 - C_{20} alkylaryl or C_7 - C_{20} arylalkyl, optionally containing one or more Si or Ge atoms;

p is an integer equal to an oxidation state of M minus 2;

L is a divalent bridging group selected from a C_1 - C_{20} alkylidene, a C_3 - C_{20} cycloalkylidene, a C_6 - C_{20} arylidene, a C_7 - C_{20} alkylarylidene, or a C_7 - C_{20} arylalkylidene radical optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and a silylidene radical containing up to 5 silicon atoms;

R^1 , R^2 , R^3 , R^4 and R^5 , equal to or different from each other, and are hydrogen, halogens, or linear or branched, saturated or unsaturated C_1 - C_{20} -alkyl, C_3 - C_{20} -cycloalkyl, C_6 - C_{20} -aryl, C_7 - C_{20} -alkylaryl, or C_7 - C_{20} -arylalkyl radicals,

optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two adjacent R^1 , R^2 , R^3 , R^4 and R^5 form at least one 3-7 membered ring optional containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements.